REMARKS

The rejections of the claims under 35 U.S.C. §112 for failure to disclose the best mode and failure to comply with the enablement requirement are not understood. Both rejections are based upon the erroneous premise that a teaching of specific means for measuring thickness of a wafer in different areas is required. Instruments for measuring the thickness of wafers are well known in the art and widely available commercially, as even a quick search on the Internet will show, and a person skilled in the art would have no trouble selecting a suitable one.

The best mode requirement is that the specification set forth the best mode **contemplated by the inventor** of carrying out his invention, not what the Examiner or someone else deems to be the best mode [see 35 U.S.C. §112, paragraph 1] . In this case, the inventors contemplated that the best way to make the thickness measurements is with a commercially available thickness monitor, and that is precisely what is set forth in the specification at Page 11, lines 5 - 12:

> An embodiment of the invention may include, and utilize for etching or deposition process control, means of measuring the thickness distribution of the film or substrate material for a processed or partially processed substrate. Such means for measuring film or substrate thickness may include one of many commercially available and sufficiently precise film or substrate thickness monitors. This method may be used to determine film or substrate thickness distribution initially, or when the etch or deposition process is partially completed . . .

Perhaps the Examiner did not see that paragraph, or perhaps his concern is with measuring thickness in different areas, in which case applicant would point out that "thickness distribution" is another way of referring to thickness in different areas.

With regard to enablement, the Examiner's position is tantamount to saying that a carpenter would not know how to measure the length of a board if the specification did not tell him whether to use a carpenter's rule, a tape measure, or a yardstick. A person skilled in wafer processing would certainly know how to measure the thickness of a wafer and would have no trouble choosing a commercially available unit for the purpose.

With this explanation, applicant trusts that the Examiner will agree that neither the best mode rejection nor the enablement rejection is well founded, and that both of them will be withdrawn.

All of the claims which are currently pending (Claims 68 - 74 and 82 - 91) have also been rejected under 35 U.S.C. §102 as being anticipated by Tomoyasu et al. (U.S. 5,888,907). Reconsideration and withdrawal of that rejection is requested.

Claim 1 clearly distinguishes over Tomoyasu et al. in calling for means for measuring the thickness of the wafer in areas corresponding to the different segments of the showerhead, and means for adjusting the flow of gas through the segments in accordance with the thickness measurements to produce a wafer of predetermined thickness and uniformity. Tomoyasu et al. does not teach measuring the thickness of the wafer in areas corresponding to different groups of the spray holes and then adjusting the flow through those groups in accordance with the measurements. Instead, it is based upon the idea of repeatedly delivering the gas from the different groups of holes in a time sharing manner.

In suggesting that Tomoyasu et al. introduces an etchant gas in a way that performs the identical function in substantially the same way and produces substantially the same results, the Examiner appears to be confusing anticipation with infringement under the Doctrine of Equivalents, as well as being factually wrong. As noted above, the system disclosed in Tomoyasu et al. does not perform the same function in the same way, nor does it produce the same result.

The Examiner is also mistaken in suggesting that limitations such as "introducing an etchant gas" are requirements of intended use which carry no patentable weight in apparatus claims. The limitations in question are part of means-plus-function limitations, which cannot be dissected as the Examiner has attempted to do. The argument which he has made would apply to the functional statement of any means-plus-function, and would make any such limitation meaningless. That clearly is not the law.

The reference made by the Examiner to a teaching in the specification about making thickness measurements after the process is complete is irrelevant. That is not what the claim calls for, and the Examiner cannot broaden the scope of the claim for purposes of rejection by such argument. The claim calls for means for measuring the thickness of the wafer in the different areas and means for adjusting the flow of gas through the segments in accordance with those measurements, and the Examiner cannot create such a teaching in the reference by arguing that someone could make the measurements manually later. Moreover, applicant would respectfully remind the

Examiner that modifying the teachings of a reference to meet the limitations of a claim has no place in an anticipation rejection.

Furthermore, it should be noted that the modification proposed by the Examiner is contrary to the express teachings of Tomoyasu et al. and that it would render the system disclosed therein incapable of performing its stated purpose. Delivering the gas from the different groups of nozzles in a time sharing manner is fundamental to the operation of the system shown in Tomoyasu et al., and that fundamental operation would be destroyed by delivering the gas in accordance with the thickness of the wafer in the different areas. Hence, in addition to being improper in an anticipation rejection, the modification proposed by the Examiner is not proper for any purpose.

Claims 69 - 72 depend from Claim 68 and are directed to patentable subject matter for the same reasons as their parent claim. In addition, they call for additional features which are not found in the reference.

Claim 69, for example, calls for means for increasing the flow of etchant gas to at least one of the segments to provide an increased etch rate in the corresponding area(s) of the wafer, and Claim 70 calls for means for adding a diluent or etching suppressant gas to the processing gas to decrease the etch rate in at least one section of the wafer.

Claim 71 calls for means for adding a diluent or etching suppressant to the processing gas, and means for decreasing the flow of etchant gas through at least one of the segments to provide a decreased etch rate in the corresponding area(s) of the wafer.

Claim 72 calls for means for interrupting the gas flow through at least one of the segments to provide a decreased etch rate in the corresponding area(s) of the wafer.

Claim 73 distinguishes over Tomoyasu et al. in calling for means for measuring the thickness of the wafer in the different areas after only a portion of the material has been removed in order to determine the effectiveness of the current flow rates on etch uniformity, and means for adjusting the flow of gas through the segments in accordance with the thickness measurements to control the etch rates in the different areas. As discussed above, Tomoyasu et al. does not even teach means for measuring the thickness of the wafer in areas corresponding to different groups of the spray holes and then adjusting the flow through those groups in accordance with the measurements, let alone means for measuring the thickness of the wafer in the different areas after only

a portion of the material has been removed in order to determine the effectiveness of the current flow rates on etch uniformity. Without such teachings, Tomoyasu et al. does not anticipate, and the rejection is clearly improper.

Claim 74 distinguishes over Tomoyasu et al. in calling for means for measuring the thickness of the wafer in the different areas after etching is complete to determine the effectiveness of the flow rates on etch uniformity, and means for adjusting the flow rates in the different areas in accordance with the measured thicknesses for use on subsequent wafers. As discussed above, Tomoyasu et al. does not teach means for measuring the thickness of the wafer in areas corresponding to different groups of the spray holes and then adjusting the flow through those groups in accordance with the measurements, and it certainly does not teach means for measuring the thickness of the wafer in the different areas after etching is complete to determine the effectiveness of the flow rates on etch uniformity, and means for adjusting the flow rates in the different areas in accordance with the measured thicknesses for use on subsequent wafers. Without such teachings, Tomoyasu et al. does not anticipate, and this rejection, too, is clearly improper.

Claim 82 distinguishes over Tomoyasu et al. in specifying, *inter alia*, that every compartment within the showerhead is connected to a line which can supply it with a fixed proportion, relative to all other compartments, of the total flow of etching process gas(es), with the etching process gas(es) being the sole supply of etching species and being complete in enabling the etching process to be performed, and the proportion of the etching gas(es) flowing to each compartment not being variable by automatic means or easily changed, and that a subset of the compartments in the showerhead are also individually connected by leak-tight gas lines to controllable supplies of a gas or gases which are not the same as the process gases, and which either accelerate or decelerate the rate of an RF discharge-based process which is using the etching process gas(es). In rejecting this claim, the Examiner has ignored the limitations requiring the etching process gas(es) to be the sole supply of etching species and being complete in enabling the etching process to be performed, the proportion of the etching gas(es) flowing to each compartment not to be variable by automatic means or easily changed, and a subset of the compartment to be connected by leak-tight gas lines to controllable supplies of a gas or gases which are not the same as the process gases, and which either accelerate or decelerate the rate of an RF discharge-based process which is using the etching

process gas(es). Evidence of this blatant disregard for the express limitations of the claim is found in the fact that the gas supplies cited by as not being the same as the process gases are the very same ones (58, 80, 76; Figure 1) that provide the process gases (58, 80, 76; Figure 1). Without each and every element specified by the claim, Tomoyasu et al. does not anticipate, and the rejection is improper.

Claims 83 - 86 depend from Claim 82 and are directed to patentable subject matter for the same reasons as their parent claim. In addition, they call for additional features which are not found in the reference.

Claim 83, for example specifies that the maximum allowed flow to any compartment of accelerant or decelerant gas(es) is less than about 20% of the flow to that compartment of the etching process gas(es), and Claim 84 specifies that the total of the flows of all accelerant or decelerant gases to all compartments is less than or about 20% of the total flow to all compartments of the etching process gas(es).

Claim 85 specifies that the accelerant gas flow to any compartment of the showerhead is less than or about 10% of the total flow of etching process gas(es) to that compartment, and Claim 86 specifies that decelerant gas flow to any compartment of the showerhead is less than or about 10% of the total flow of etching process gas(es) to that compartment.

Claim 87 likewise distinguishes over Tomoyasu et al. in specifying that every compartment within the showerhead is connected to a line which can supply it with a fixed proportion, relative to all other compartments, of the total flow of etching process gas(es), with the etching process gas(es) being the sole supply of etching species and being complete in enabling the etching process to be performed, and the proportion of the etching gas(es) flowing to each compartment not being variable by automatic means or easily changed, and that a subset of the compartments in the showerhead are also individually connected by leak-tight gas lines to controllable supplies of a gas or gases which are not the same as the process gases, and which either accelerate or decelerate the rate of an RF discharge-based process which is using the etching process gas(es). As discussed above, Tomoyasu et al. does not teach such elements, and without them, the rejection is clearly improper.

Claims 88 - 91 depend from Claim 87 and are directed to patentable subject matter for the same reasons as their parent claim. In addition, they call for additional features which are not found in the reference.

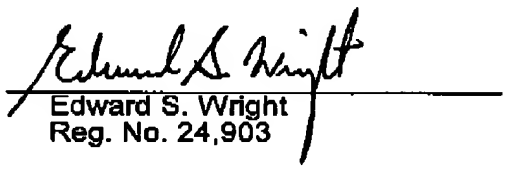
Claim 88, for example, specifies that the maximum allowed flow of accelerant or decelerant gas(es) to any compartment is less than about 20% of the flow of the etching process gas, and Claim 89 specifies that the total of the flows of all accelerant or decelerant gases to all compartments is less than or about 20% of the total flow to all compartments of the etching process gas.

Claim 90 specifies that the accelerant gas flow to any compartment of the showerhead is less than or about 10% of the flow of etching gases to that compartment, and Claim 91 specifies that the decelerant gas flow to any compartment of the showerhead is less than or about 10% of the total flow of etching gases to that compartment.

For the reasons discussed above, it is respectfully submitted that Claims 68 - 74 and 82 - 91 are all directed to patentable subject matter and that the application is in condition for allowance.

The Commissioner is authorized to charge any fees required in this matter, including extension fees, to Deposit Account 50-2975, Order No. A-70179.

Respectfully submitted,



Edward S. Wright
Reg. No. 24,903

Law Offices of Edward S. Wright
1100 Alma Street, Suite 207
Menlo Park, CA 94025
Telephone: (650) 330-0830
Facsimile: (650) 330-08301
Email: twright@claim1.com